AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions and listings of claims in the above-referenced application.

Listing of Claims:

1. (Currently amended) Internal combustion engine system, comprising:

an internal combustion engine operating on at least one of ethanol, methanol, natural gas and propane, the engine having a compression ratio in the range of 11-16; and

means for introducing into the engine fuel/air mixtures including an amount of hydrogen to substantially eliminate misfire at a first equivalence ratio in the range of 0.4 – 0.7 when the engine is operating below a selected torque or power level and introducing into the engine fuel/air mixtures in a second equivalence ratio range wherein the second equivalence ratio is greater than the first equivalence ratio when the engine is operated above the selected torque or power level, the second equivalence ratio being sufficiently low at all times to prevent knock and further including a knock sensor to detect knock in the engine.

2. (Currently amended) Internal combustion engine system, comprising:

an internal combustion engine operating on at least one of ethanol, methanol, natural gas and propane, the engine having a compression ratio in the range of 11-16;

means for introducing into the engine EGR along with a stoichiometric fuel/air mixture including hydrogen sufficient to prevent misfire and wherein the amount of EGR is always sufficient to prevent knock.

3. (New) An internal combustion engine system, comprising:

an internal combustion engine, said engine having a compression ratio in the range of approximately 11 to 16; and

means for inhomogeneously injecting hydrogen into a cylinder of the engine, wherein the injection of hydrogen is stratified such that a concentration of hydrogen injected in a region close to a spark plug is larger than at any other region within said cylinder.

4. (New) The engine system of claim 3, further comprising means for introducing EGR into the engine.

5. (New) The engine system of claim 3, further comprising means for increasing turbulence in said engine.

6. (New) The engine system of claim 3, further comprising a knock sensor that detects knock.

7. (New) The engine system of claim 3, wherein said means for inhomogeneously injecting hydrogen varies hydrogen injection such that a misfire does not occur as an equivalence ratio increases.